U.S. Patent Application of

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for a

MULTIPLE PAGE SOUND TONE DIALOG IN COMMUNICATION DEVICE

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SOUND TONE DIALOG IN COMMUNICATION DEVICES

Field of the Invention

This invention generally relates to communication devices such as mobile

5   devices or mobile phones and more specifically to utilizing a multiple page dialog

field for setting sound tasks in the communication devices.

Background of the Invention

Normally all the sounds of the fixed sound set (ringing tones, message sounds,

etc.) are listed in the same dialog "Fixed sounds dialog" in communication devices

10   such as mobile devices and phones (e.g., Nokia communicator 9210i). The dialog is

used in Profile settings when defining ringing tones for different purposes (calls,

messages, calendar and clock alarms). All tones and sounds are in the same dialog. A

similar dialog is used when assigning personal ringing tones in a Contact manager

application.

15   However, sounds are designed for different purposes, i.e., to be used as

ringing tones, messages sounds, clock alarms and calendar alarms, etc. When the

sounds were listed alphabetically in a typical prior art fixed sound dialog, the user just

had to figure out which sounds were meant for which purpose. A dialog containing all

the sounds in the fixed sound set typically uses a very long selection list. Since the

20   height of the screen is limited, the list required a lot of scrolling. A more efficient and

user friendly methodology for setting appropriate ringing sound tones in the

communication device is desired.

Summary of the Invention

The object of the present invention is to provide a methodology for using a

25   multiple page dialog field for setting sound tasks in a communication device such a

mobile device or a mobile phone.

According to a first aspect of the invention, a method for using a multiple page

dialog field for setting tasks in a communication device, comprises the steps of:

1

opening said multiple page dialog field on one page with a page number i of K pages by a user using a setting page means, wherein said one page contains N_i dedicated sound tone items with a predetermined purpose and presented only on said one page, and optionally contains a no-tone sound item, wherein K is an integer of at least a

5 value of 2, N_i is an integer of at least a value of 2 and i is an integer of a value of $0<i<K+1$; and choosing at least one desired sound tone item from said N_i dedicated sound tone items or said no-tone sound item by the user using a setting item means thus facilitating said setting of said tasks.

According further to the first aspect of the invention, the step of said opening

10 said multiple page dialog field on said one page may be performed optionally by default using said setting page means and wherein after said opening, the method further comprises the step of: determining if a further page with a page number j out of said K pages is needed to be open for completing said setting of the tasks, wherein j is an integer of a value of $0<j<K+1$ and $j\neq i$. Further, if it is determined that the further

15 page needs to be opened, the method may further comprise the steps of: opening said further page with the page number j using said setting page means, wherein said further page contains N_j further dedicated sound tone items with a further predetermined purpose presented only on said further page, and optionally contains a further no-tone sound item, wherein N_i is an integer of at least a value of 2; and

20 choosing at least one further desired sound tone item from said N_j further dedicated sound tone items or said further no-tone sound item by the user using the setting item means thus further facilitating said setting of said tasks. Still further, said one page with the page number i of the K pages may contain a page icon area with K icons, each identifying a corresponding one of said K pages by a picture or by a text,

25 respectively, for visually assisting the user for said opening of the further page. Yet still further, said opening of the further page may be performed by scrolling means optionally with arrow keys used as said setting page means.

Further according to the first aspect of the invention, the method may further comprise the step of: turning off all said N_i dedicated sound tone items listed on said

30 one page, if the no-tone sound item is chosen.

Still further according to the first aspect of the invention, the method may further comprise the step of: saving a selection of the at least one desired sound tone

2

item by the communication device if said at least one desired sound tone item is chosen. Further, the method may further comprises the steps of: opening said multiple page dialog field on a still further page by the user using the setting page means, wherein said still further page contains P dedicated non-sound items with a

5   predetermined purpose presented only on said one page, wherein P is an integer of at least a value of 2; and choosing at least one desired non-sound item from said P dedicated non-sound items by the user using the setting item means thus further facilitating said setting of said tasks.

According further to the first aspect of the invention, said K pages may

10   contain a ringing tone page, a message page and an alarm page with K=3.

Still yet further according to the first aspect of the invention, the step of choosing said at least one desired sound tone item may include playing said at least one desired sound tone using said setting item means.

According still further to the first aspect of the invention, the communication

15   device may be a mobile device or a mobile phone.

According yet still further to the first aspect of the invention, the setting page means may be a button, a number of buttons, a touch screen or a voice activator, or a combination thereof.

According further still to the first aspect of the invention, the setting item

20   means can be a button, a number of buttons, a touch screen or a voice activator, or a combination thereof.

Yet still further according to the first aspect of the invention, the multiple page dialog field can be a display.

According to a second aspect of the invention, a communication device having

25   a multiple page dialog capability for setting tasks, comprises: a multiple page dialog field, responsive to a setting page signal by displaying one page with a page number i of K pages, and to a setting item signal by choosing at least one desired sound tone item from N_i dedicated sound tone items with a predetermined purpose and only contained on said one page or by choosing a no-tone sound item optionally contained

30   on said one page thus facilitating said setting of said tasks, wherein K is an integer of

at least a value of 2, N_i is an integer of at least a value of 2 and i is an integer of a value $0<i<K+1$; setting page means, responsive to a page command signal from a user, for providing said setting page signal; and setting item means, responsive to an item command signal from the user, for providing said setting item signal.

5   According further to the second aspect of the invention, the setting page means and the setting item means may be combined in one block, setting page and item means.

Further according to the second aspect of the invention, all said N_i dedicated sound tone items listed on said one page may be turned off if the no-tone sound item

10   is chosen.

Still further according to the second aspect of the invention, while the open page is still open, said setting page means opens a further page with a page number j of the K pages, wherein j is an integer of a value $0<j<K+1$ and $j\neq i$. Further, said one page with the page number i of the K pages may contain a page icon area with K

15   icons, each identifying a corresponding one of said K pages by a picture or by a text, respectively, for visually assisting the user for said opening of the further page. Still further, said selection may be performed by scrolling means optionally with arrow keys used as said setting page means.

According further to the second aspect of the invention, said K pages may

20   contain a ringing tone page, a message page and an alarm page with K=3.

According still further to the second aspect of the invention, said setting item means may facilitate playing said at least one desired sound tone item during said choosing.

According further still to the second aspect of the invention, said device may

25   be a mobile device or a mobile phone.

Yet still further according to the second aspect of the invention, the setting page means may be a button, a number of buttons, a touch screen or a voice activator, or a combination thereof.

According yet further still to the second aspect of the invention, the setting item means may be a button, a number of buttons, a touch screen or a voice activator, or a combination thereof.

Still yet further according to the second aspect of the invention, the multiple page dialog field may be a display.

According to a third aspect of the invention, a computer program product comprises: a computer readable storage structure embodying computer program code thereon for execution by a computer processor with said computer program code characterized in that it includes instructions for performing the steps of the first aspect of the invention indicated as being performed by the communication device.

According to a fourth aspect of the invention, a method for using a multiple page dialog field for setting tasks in a communication device, comprises the steps of: opening said multiple page dialog field on one page with a page number i of K pages by a user using a setting page means, wherein said one page contains N_i dedicated items with a predetermined purpose and presented only on said one page, wherein K is an integer of at least a value of 2, N_i is an integer of at least a value of 2 and i is an integer of a value of $0 < i < K+1$; and choosing at least one desired item from said N_i dedicated items by the user using a setting item means thus facilitating said setting of said tasks.

According to a fifth aspect of the invention, a communication device having a multiple page dialog capability for setting tasks, comprises: a multiple page dialog field, responsive to a setting page signal by displaying one page with a page number i of K pages, and to a setting item signal by choosing at least one desired item from N_i dedicated items with a predetermined purpose and only contained on said one page thus facilitating said setting of said tasks, wherein K is an integer of at least a value of 2, N_i is an integer of at least a value of 2 and i is an integer of a value $0 < i < K+1$; setting page means, responsive to a page command signal from a user, for providing said setting page signal; and setting item means, responsive to an item command signal from the user, for providing said setting item signal.

Because the sounds are divided to different pages of a multipage dialog, the amount of scrolling reduces. The user also has a better picture about which sound is

meant for which purpose because the sounds are combined in a particular page based on their purpose, according to the present invention. For example, it can be much easier to find "alarm-like sounds" from one page and "melodic tones" from another page.

5   Brief Description of the Drawings

For a better understanding of the nature and objects of the present invention, reference is made to the following detailed description taken in conjunction with the following drawings, in which:

Figures 1a and 1b show examples of a block diagram of a communication

10   device having a multiple page sound tone dialog capability, according to the present invention.

Figure 2 shows an example of one page with dedicated sound tone items, which can be opened using multiple page sound tone dialog capability, according to the present invention.

15   Figure 3 shows an example of a flow chart demonstrating a performance of a communication device having a multiple page sound tone dialog capability, according to the present invention.

Best Mode for Carrying Out the Invention

The present invention provides a novel methodology for using a multiple page

20   dialog field for setting sound tasks in a communication device such as a mobile device or a mobile phone. The term "setting sound tasks" means setting specific sound tones for a particular purpose on a particular page or setting a no-tone for said purpose.

According to the present invention, the dialog/sounds are divided into multiple pages ("tabs"), for example, Ringing tones page, Message tones page, Alarms page,

25   etc. The sounds are placed to different pages according to their purposes. The right page is opened using a setting page means, which, for example, can be implemented as a default setting depending on from where the dialog is opened. However, if the user wishes to select a ringing tone sound from another page, e.g., the "message tone page", it is allowed and possible to do by going directly to that page from the previous

page using, for example, scrolling means with arrow keys ($\rightarrow$ or $\leftarrow$). Every page has a no-tone selection as well. Figure 1a and 1b shows one example among many others of a block diagram of a communication device **10** having a multiple page sound tone dialog capability, according to the present invention.

5   A multiple page dialog field **12** is typically implemented as a display capable of displaying one page (or a tab) **12-i** (see Figure 2). Said one page **12-i** is selected out of K other pages **12-1, 12-2,..., 12-K** with different dedicated sound tone items having a different predetermined purpose for each page in response to a setting page signal **24** from a setting page means **14**, wherein K is an integer of at least a value of

10   two and i is an integer of a value of $0<i<K+1$. Said one page **12-i** contains (see Figure 2) N_i dedicated sound tone items **30-i-1, 30-i-2, ..., 30-i-N_i** with a predetermined purpose presented only on said one page, and also contains a no-tone sound item **32-i**, wherein N_i is an integer of at least a value of 2. Said setting page signal **24** is generated in response to a page command signal **20** from a user **11**.

15   Said one page **12-i** is opened using said setting page means **14** which can be implemented as a default setting depending on from where the dialog is opened. More specifically, the page that is active (i.e., opened) when the dialog is opened depends on from which field of the Profile Settings Dialog the multiple page dialog field is opened. That is if the dialog is opened from the "Received SMS (short message

20   service)" field in the Profile Settings Dialog the "Message tones" page is opened as a default. Furthermore, if the field (e.g., page **12-i**) from where the dialog was opened already has a sound tone item from the list of the sound tone items **30-i-1, 30-i-2, ...,** **30-i-N_i** as a selected value, then said sound tone item is selected (highlighted) when the dialog is opened. If the field (e.g., page **12-i**) has another audio file (selected from

25   the file system) as a value, the first sound tone item in the list **30-i-1** (i.e., the one located after no-tone sound item **32-i**,) is selected (highlighted) when the dialog is opened on said page **12-i**.

         However, if the user wishes to select, e.g., a ringing tone sound from another page (not contained on said one page), it is allowed and possible to do so by going

30   directly to that page (a further page **12-j**, wherein j is an integer of a value of $0<j<K+1$ and $j\neq i$) from the previous page (said one page **12-i**) using, for example, scrolling means optionally with arrow keys ($\rightarrow$ or $\leftarrow$). To facilitate said scrolling, the

7

one page 12-i (and all other K-1 pages) contains a page icon area 31 (see Figure 2) with K icons 31-1, 31-2, ..., 31-K, each identifying a corresponding one of said K pages 12-1, 12-2,..., 12-K by a picture or by a text, respectively, for visually assisting the user 11 for said opening of the further page.

5   For example, said K pages 12-1, 12-2, ..., 12-K can be a ringing tone page, a message page and an alarm page (for K=3). If the one page 12-i contains a page icon area 31 (see Figure 2), the number of pages K is limited to about 5 considering a practical size of the multiple page dialog field 12 which is limited by the dimensions of the communication device 10. However, the page number K can be further increased by using said setting page means 14 for those applications, according to the present invention, where said opening and/or scrolling of said pages do not require said page having the icon area 31.

Furthermore, after said one page 12-i is open, at least one desired sound tone item from said N_i dedicated sound tone items 30-i-1, 30-i-2, ..., 30-i-N_i or the no-tone sound item 32-i is chosen using a setting item signal 22 from a setting item means 16. Said setting item signal 22 is generated in response to an item command signal 18 from the user 11. If the no-tone sound item 32-i is chosen, all said N_i dedicated sound tone items 30-i-1, 30-i-2, ..., 30-i-N_i listed on said one page 12-i (see Figure 2) are turned off. If, however, said at least one desired sound tone item is chosen, the communication device 10 completes and saves a selection of said at least one desired sound tone item. If after said selection is completed, another sound tone item from said N_i dedicated sound tone items 30-i-1, 30-i-2, ..., 30-i-N_i can be chosen and selected as described above. Said choosing and selection can be implemented one sound tone item at a time sequentially according to the preferred embodiment of the present invention. According to the present invention it is noted that choosing said at least one desired sound tone item can include playing said at least one desired sound tone item using said setting item means 16.

Similarly, if the further page 12-j is opened, it contains N_j further dedicated sound tone items 30-j-1, 30-j-2, ..., 30-j-N_j with a further predetermined purpose and presented only on said further page 12-j, and it also contains a further no-tone sound item 32-j, wherein N_i is an integer of at least a value of 2. Again similarly, at least one further desired sound tone item from said N_j further dedicated sound tone items 30-j-

8

1, 30-j-2, ..., 30-j-N$_j$ or said further no-tone sound item **32-j** is chosen using a setting item signal **22** from a setting item means **16**. As mentioned above, the one page **12-j** also contains a page icon area **31** with K icons **31-1, 31-2, ..., 31-K**.

There are many variations of the communication device **10** having a multiple page sound tone dialog capability shown in Figure 1a, according to the present invention. For example, as shown in Figure 2a, the setting page means **14** and the setting item means **16** can be combined in one block, setting page and item means **15**. Furthermore, the communication device **10** can be a mobile device or a mobile phone. Moreover, the setting page means **14** can be implemented as a button, a number of buttons, a touch screen or a voice activator, or a combination thereof. Similarly, the setting item means **16** can be implemented as a button, a number of buttons, a touch screen or a voice activator, or a combination thereof. Furthermore, the same principle of the multiple page dialog, according to the present invention, can be applied to placing non-sound items (e.g., security items, network services items, etc.) on separate pages according to their purposes and using similar selection process. In that regard, according to the present invention, the sound tasks referred to above can be interpreted in a broader sense as tasks for setting both sound and non-sound tasks for a particular purpose on a particular page of a multiple page dialog field.

Figure 2 shows one example among others of one page **12-i** with dedicated sound tone items, which can be opened using multiple page sound tone dialog capability, according to the present invention.

As discussed above said one page **12-i** contains N$_i$ dedicated sound tone items **30-i-1, 30-i-2, ..., 30-i-N$_i$** with a predetermined purpose presented only on said one page, and contains a no-tone sound item **32-i**, wherein N$_i$ is an integer of at least a value of 2. In addition, in order to facilitate scrolling to the further page **12-j**, the one page **12-i** can contain a page icon area **31** (see Figure 2) with K icons **31-1, 31-2, ..., 31-K**, each identifying a corresponding one of said K pages **12-1, 12-2,..., 12-K** by a picture or by a text, respectively, for visually assisting the user **11** for identifying the currently opened page and for opening of the further page.

Figure 3 shows an example of a flow chart demonstrating a performance of a communication device having a multiple page sound tone dialog capability, according to the present invention.

The flow chart of Figure 3 represents only one possible scenario among others. In a method according to the present invention, in a first step **40**, the user **11** opens said multiple page dialog field **12** for setting sound tasks in the communication device **10** on said one page **12-i** (e.g., a default page) with the page number i of said K pages **12-1, 12-2, ..., 12-K** using said setting page signal **24** from the setting page means **14** or from the setting page and item means **15**, wherein said setting page signal **24** is sent in response to the page command signal **20** from the user **11**.

In a next step **42**, it is ascertained by the user **11** whether the opened one page **N-i** is a desired (right) page. If that is the case, in a next step **44** at least one desired sound tone item from said N_i dedicated sound tone items **30-i-1, 30-i-2, ..., 30-i-N_i** or the no-tone sound item **32-i** is chosen using a setting item signal **22** from a setting item means **16**. Said setting item signal **22** is generated in response to an item command signal **18** from the user **11**. If however, the opened one page **N-i** is not the desired (right) page, in a next step **46**, the user **11** opens said desired (further) page **12-j**. As described above, this can be done from the previous page (said one page **12-i**) using, for example, scrolling means optionally with arrow keys ($\rightarrow$ or $\leftarrow$). To facilitate said scrolling, the one page **12-i** contains the page icon area **31** with K icons **31-1, 31-2, ..., 31-K**, each identifying the corresponding one of said K pages **12-1, 12-2,..., 12-K** by the picture or by the text, respectively, for visually assisting the user **11** for making said opening of the desired further page **12-j**. The selection of the further (desired) page **12-i** is followed by the step **44** as described above.

In a next step **48** (after step **44**), it is ascertained by the user **11** whether the chosen said item is the no-tone sound item. If that is the case, in a next step **50**, all said N_i dedicated sound tone items **30-i-1, 30-i-2, ..., 30-i-N_i** (or similarly all said N_j further dedicated sound tone items **30-j-1, 30-j-2, ..., 30-j-N_j** listed on said further page **12-j**) are turned off. If, however, the chosen item is not the no-tone sound item, in a next step **52**, the communication device **10** completes and saves the selection of said at least one desired sound tone item (or said at least one further desired sound

tone item). At this point the dailog page can be closed, according to the preferred embodiment of the present invention.

Finally, in a next step **54,** it is ascertained by the user **11** whether there is a need to open another page to set the sound task. If that is not the case, the process stops. If however, at least one more sound page is to be opened, the process goes to step **40** (if the dialog page is closed) or optionally to step **46** (if the dialog page is not closed).

As explained above, the invention provides both a method and corresponding equipment consisting of various modules providing the functionality for performing the steps of the method. The modules may be implemented as hardware, or may be implemented as software or firmware for execution by a processor. In particular, in the case of firmware or software, the invention can be provided as a computer program product including a computer readable storage structure embodying computer program code, i.e., the software or firmware thereon for execution by a computer processor (e.g., provided with the communication device **10**).